

WHAT IS CLAIMED IS:

1. A display apparatus comprising:

a substrate;

5 a first electrode and a second electrode which are formed on one side of the substrate; and

10 an optical material layer which is located between the first electrode and the second electrode and formed by bringing a droplet of an optical material containing liquid, that sticks to a predetermined position of a surface of a plate in accordance with a pattern based on a difference in wettability, into contact with the substrate and transferring the droplet to the substrate side.

15 2. An apparatus according to claim 1, wherein the substrate has a wettability changeable layer formed on the first electrode, the wettability changeable layer having at least one lyophilic portion and at least one liquid repellent portion continued from the lyophilic portion.

20 3. An apparatus according to claim 2, wherein the first electrode comprises a plurality of first electrode sections, the lyophilic portion is formed on each first electrode section, and the liquid repellent portion is formed on a portion between the plurality of first electrode sections.

25 4. An apparatus according to claim 2, wherein the liquid repellent portion has a functional group

containing fluorine, and the lyophilic portion contains no fluorine.

5. An apparatus according to claim 2, wherein the liquid repellent portion has a functional group containing fluorine, and the lyophilic portion has a structure in which the functional group containing fluorine in the liquid repellent portion is substituted with a functional group containing no fluorine.

10. 6. An apparatus according to claim 2, wherein the lyophilic portion of the wettability changeable layer is thinner than the liquid repellent portion thereof.

7. An apparatus according to claim 2, wherein the lyophilic portion has a thickness between 0.0 nm (exclusive) and 1.0 nm (inclusive).

15. 8. An apparatus according to claim 1, wherein the optical material layer is surrounded by a partition.

9. A method of manufacturing a display apparatus including an optical element having an optical material layer between a first electrode and a second electrode 20 which are formed on a one side of a substrate, comprising:

an aligning step of making the substrate oppose a plate which has a wettability changeable layer and to which a droplet of an optical material containing liquid sticks in accordance with a pattern based on a difference in wettability, and of aligning the substrate and the plate; and

a transfer step of bringing the droplet into contact with the substrate to transfer the droplet to the substrate side, thereby forming the optical material layer.

5 10. A method according to claim 9, wherein the transfer step is a step of transferring the droplet onto the first electrode.

10 11. A method according to claim 9, wherein the first electrode comprises a plurality of first electrode sections,

15 the substrate comprises a wettability changeable layer having a lyophilic portion formed on each first electrode section and a liquid repellent portion formed on a portion between the plurality of first electrode sections, and

the transfer step is transferring the droplet onto the lyophilic portion.

20 12. A method according to claim 9, wherein the optical material layer contains a charge transport layer material and a light-emitting layer material, and

25 the transfer step is transferring at least one of a droplet of an optical material containing liquid containing the charge transport layer material and a droplet of an optical material containing liquid containing the light-emitting layer material.

13. A method according to claim 9, further

comprising, as pre-steps of the aligning step,

a step of forming, on the substrate having the first electrode, a second wettability changeable layer whose wettability for an optical material containing

5 liquid can change upon irradiation of active rays, and

an active ray irradiation step of irradiating the second wettability changeable layer on the first electrode with the active rays.

14. A method according to claim 9, wherein

10 the plate includes

a first plate to which a first droplet of an optical material containing liquid containing a first light-emitting layer material that emits light of a first color sticks in a predetermined pattern, and

15 a second plate to which a second droplet of an optical material containing liquid containing a second light-emitting layer material that emits light of a color different from the first color sticks in a pattern different from that of the first droplet, and

20 the transfer step includes a step of transferring the first droplet to the substrate side by using the first plate and then transferring the second droplet to the substrate side by using the second plate.

15. A method according to claim 13, wherein

25 the plate includes

a first plate to which a first droplet of an optical material containing liquid containing a first

light-emitting layer material that emits light of a first color sticks in a predetermined pattern, and a second plate to which a second droplet of an optical material containing liquid containing a second light-emitting layer material that emits light of a color different from the first color sticks in a pattern different from that of the first droplet, and the transfer step includes a step of irradiating the second wettability changeable layer at a position corresponding to the pattern of the first droplet sticking to the first plate with the active rays, transferring the first droplet to the substrate side by using the first plate, irradiating the second wettability changeable layer at a position corresponding to the pattern of the second droplet sticking to the second plate with the active rays, and then transferring the second droplet to the substrate side by using the second plate.

16. A method according to claim 9, wherein the wettability changeable layer has a compound in which a fluoroalkyl group is bonded to a main chain made of silicon and oxygen.

17. A method according to claim 9, wherein the wettability changeable layer has a condensate obtained by hydrolyzing and condensing a silazane compound having a fluoroalkyl group.

18. A method according to claim 9, wherein the

wettability changeable layer has a photocatalyst.

19. A method according to claim 9, wherein
one of the first and second electrodes is formed
on the substrate for each sub pixel, and a partition
5 that surrounds one of the electrodes is formed on the
substrate, and

in the transfer step, a droplet of an optical
material containing liquid is transferred to a region
surrounded by the partition.

10 20. A display apparatus manufacturing apparatus
for manufacturing a display apparatus including an
optical element having an optical material layer
between a first electrode and a second electrode which
are formed on one side of a substrate, comprising:

15 moving means, having a plate having a wettability
changeable layer with a pattern based on a difference
in wettability to an optical material containing
liquid, for bringing a droplet sticking to the
wettability changeable layer into contact with the
20 substrate.